

# DURABLE TRANSPORT INFRASTRUCTURE IN THE ATLANTIC AREA

## NETWORK

ACCESSIBILITY & TRANSPORTS  
PROJECT 2008-1/049



## DURATINET

### NEWSLETTER

Nr 06

June 2011

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ATLANTIC AREA Transnational Programme  
ESPACIO ATLÁNTICO Programa Transnacional  
ESPACE ATLANTIQUE Programme Transnational  
ESPAÇO ATLÂNTICO Programa Transnacional

Investing in our common future



European Union

European Regional  
Development Fund

*This Newsletter reports on the dissemination activities and project progress achieved during the 5<sup>th</sup> semester (January – June 2011) of the DURATINET project.*

The 5th Consortium Meeting and the 5th Trans-national Workshop took place in Vigo at 20th to 22th January 2011. The Meeting and the Workshop were organized by the University of Vigo with the collaboration of Port of Vigo Administration and Road Authority from Xunta da Galicia in Spain for the communication and dissemination of project activities to the project partners and to stakeholders from Galicia .

## UNIVERSITY OF VIGO

Established in 1990 after separation from the University of Santiago de Compostela, the origins of the University of Vigo must be sought way back in the beginning of the 20th century and more precisely in 1901, when teaching activity actually began at the Higher School of Industry. However, it was not until 1970 when the programs taught at the School and the business studies taught at the School of Commerce actually achieved recognition as part of university teaching when they became part of the University of Santiago.

After two decades since its creation and with a view to the future, the University of Vigo has continued to strive to consolidate itself as an institution within the national and international arena. The University of Vigo has three well equipped campus to cater to the needs of the academic community with approximately 25,000 members , including students, teaching and research staff, and administrative and services staff. Almost 60 study programs, distributed over around thirty faculties make up nowadays the educational offer at the University of Vigo, with the presence of fields such as technology, legal and social, humanities and science.



In October 2010 the Project “Campus do Mar” (Marine Campus), presented by the University of Vigo, was selected as International Excellence Campus. The project aims to create a campus which will be composed of a number of specialized centers in multidisciplinary aspects related with the sea, with full integration between the institutions from where they will be created and with a strong impact on the socioeconomic building of the euro-region and on the promotion of the sustainable development of this territory.

*This is the 6th edition of the **DURATINET Newsletter**. The Newsletter series is one of the ways developed in the project for communication and dissemination of general information on project activities. The format of the newsletter is mainly designed for on-line download ([www.duratinet.org](http://www.duratinet.org))*

### DURATINET TECHNICAL GUIDE “Maintenance and Repair of Transport Infrastructure”

The progress done by DURATINET Project during the 5th semester of project development was mainly concerned with the preparation of the Technical Guide. The Editorial Commission meet in May in Lisbon for preparing the main revision of the contents of the several volumes of the guide.

The main purpose of this Technical Guide is to provide a tool for the maintenance and repair of structures that is practical, user-friendly and accessible to all end-users involved in the maintenance of transport infrastructure. It will be a very important and useful project end product for the Administrations and enterprises working in the area of maintenance of transport infrastructure.

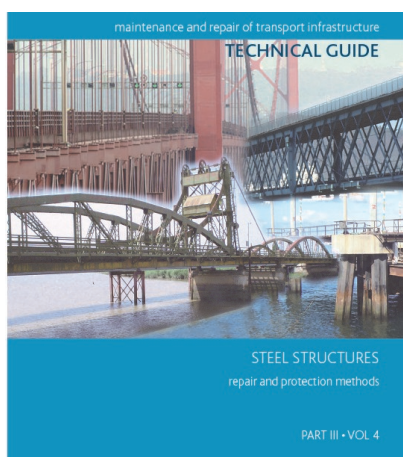
The objective of any maintenance management strategy is to maintain or restore the original integrity of structure or one of its elements and to mitigate the defects induced by the progress of deterioration. To prevent recurrence of deterioration processes after repair, the original cause must be known and the selected repair technique must include a strategy to eliminate it. Of fundamental importance, therefore, is the correct diagnosis of the deterioration process, the identification of the specific causes of the deterioration and the selection of an appropriate repair technique.

The Technical Guide reflects the harmonized knowledge and the general practices followed in this field in the Atlantic Area and contains the most relevant concepts for steel and reinforced concrete structures relating to:

- General methodologies for the management and assessment of structures
- Deterioration processes for structural steel and reinforced concrete and the main usual causes
- Testing techniques (destructive and non-destructive) applicable during routine or special inspections
- Repair methods and protection systems and their adequacy to the several deterioration causes

The Technical Guide will have two versions:

Hard copy edition and CD



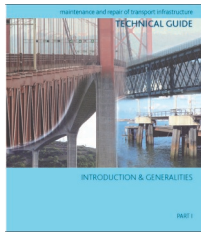
Interactive web application



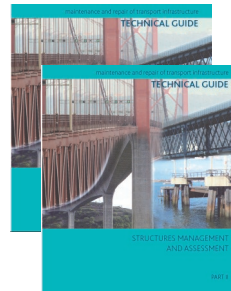


### DURATINET TECHNICAL GUIDE

HARD COPY : contains 12 volumes organized in four parts



#### Part I — Introduction to Technical Guide



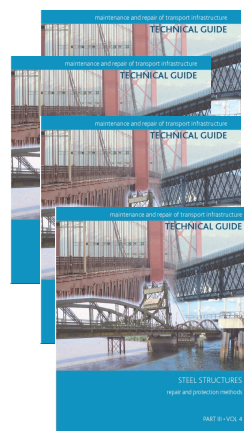
#### Part II — Maintenance and Structural Assessment

Vol 1 General guidelines  
Vol 2 Assessment and  
maintenance planning



#### Part III — Steel Structures

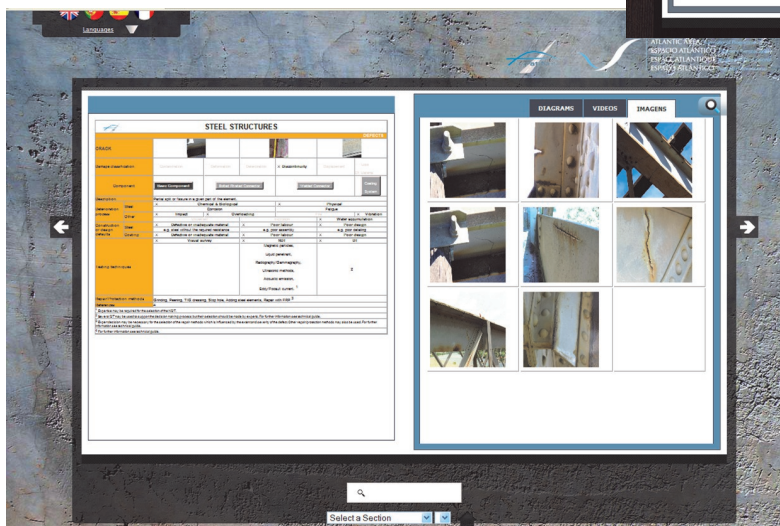
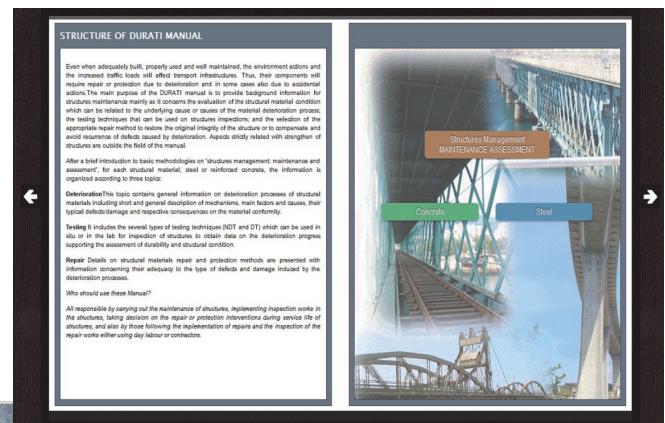
Vol 1 Durability factors  
Vol 2 Deterioration  
Vol 3 Testing techniques  
Vol 4 Repair methods  
Vol 5 Protection systems



#### Part IV — Concrete Structures

Vol 1 Durability factors  
Vol 2 Deterioration  
Vol 3 Testing techniques  
Vol 4 Repair methods

**WEB VERSION :** presents a similar content structure of the hard copy with the various subjects concerning - deterioration processes, defects, testing techniques and repair methods - mainly presented in toolbox format with several figures for illustration in each case. This format was especially designed for user-friendly access on the internet.



[www.duratinet.org/techguide](http://www.duratinet.org/techguide)

### 5th Trans-national Workshop

The 5th Trans-national Workshop was held on 21 January 2011 at Centre Social in Vigo, Spain. The event was co-chaired by Albert Daly of NRA and R. Novoa of UV and was attended by 41 delegates.

The workshop programme was divided in two sessions.

**Session 1** mainly concerned with the presentation of DURATINET project objectives, progress activities and expected results made by the project leader and other project partners.

**Session 2** devoted to present the Spanish–Galicia experience on Maintenance and Repair of Transport Infrastructure. Three presentations were made concerning:

- Strategies for durability. The view of roads authority of Galicia, by Road Authority, Xunta de Galicia
- Reinforced concrete structures affected by rebar corrosion. Experiences of assessing and repairing, by José González Piñeiro, ENMACOSA
- Laser scanning approach to acquire operational deflection shapes of civil structures: the SCADD system. J.L. Fernández, University of Vigo

The workshop closed after a panel discussion between the invited speakers, the project consortium members and all the participants in the Workshop, concerning several aspects and practical issues in the maintenance and repair of transport infrastructure.



### 5th Consortium meeting

The 5th Consortium Meeting was held in Vigo by invitation of University of Vigo with the collaboration of Port of Vigo and Xunta da Galicia on 20-22 January 2011. The meeting was attended by 30 consortium members from five European countries, representing the 17 DURATINET partners.

During the meeting, each of the Working Group leaders presented the progress achieved in the last project semester and the plan of activities for the next semester. Agreement on the progress achieved in relation to the overall project plan was evaluated by the Steering Committee and the milestones and deliverables for the end products of the project under preparation were established and assigned to all partners. The Advisory Committee discussed also several aspects related to the public project documents presentation.



### Technical Visit to Port of VIGO

A technical visit was offered by the Port of Vigo Authority. The attendants had the opportunity to visit the Port infrastructure and the bridge over the bay of Vigo (ria).

The Vigo Bay has very good natural conditions for ships access. The Port of Vigo has an strategic position, it is situated in the biggest commercial maritime route between America and Europe. The Port of Vigo combines extraordinary characteristics to meet the present traffic enlarging its area of influence both ashore and at sea, being the key in the short sea shipping and motorways of the sea.

The Port of Vigo due to the large commercial activities of its fishing-ship owners, wholesalers, auctioneers, canning factories and frozen-fish plants, has been known worldwide for many years as one of the main fishing port in the world. The total fish handled in the Port of Vigo, fresh, salted and frozen, during 2008 was 751.971 tons, this means that Vigo is the first port in the world in fishing for human consumption.



### Conviviality

After the Workshop and meetings, the partners and the invited workshop guests meet informally at a reception and during a consortium dinner hosted by the University of Vigo, which provided the opportunity for informal but, nevertheless, important discussions to take place in relaxed and convivial surroundings.



A session **DURATINET** was organized during this semester for the National conference ASCP11 which will be in Coimbra -Portugal on 29th June to 1st July



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### Introdução

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### Sessões Especiais

### Novo:Autores

### Exposição Técnica

### Patrocinadores

### Programa Social

### Alojamento

### Inscrição On-line

**Duratinet: Guia de recomendações técnicas de apoio à manutenção das estruturas metálicas e de betão armado**

#### Breve Descrição

Uma das metas deste projecto é criar uma rede de conhecimentos na área da durabilidade das estruturas em aço e betão armado entre os centros de investigação, as entidades gestoras e os vários profissionais envolvidos na manutenção e reparação das infra-estruturas de transportes no Espaço Atlântico.

#### Organizado por:



**Manuela Salta msalta@lnec.pt**

LNEC - Laboratório Nacional de Engenharia Civil,  
Dep. de Materiais

#### Pontes Existentes: Reabilitar ou Renovar?

#### Breve Descrição

A questão mais pertinente que se coloca face a pontes existentes que não cumprem os critérios de segurança é relativa à escolha da intervenção mais adequada, i.e., à opção entre reabilitar e renovar. Esta decisão nunca é simples porque tem implicações ambientais e económicas significativas e de avaliação complexa. Nesta sessão especial procura-se fornecer elementos que permitam promover uma reflexão alargada sobre o tema, cobrindo de forma abrangente os sub-tópicos mais relevantes neste contexto, com referência a casos de estudo: (i) inspecção e identificação de anomalias; (ii) instrumentação e ensaios para caracterização estrutural; (iii) modelação numérica; (iv) análise de risco; (v) sustentabilidade ambiental e económica - análise de ciclo-de-vida; e (vi) projecto de reabilitação versus projecto de obra nova.

Several presentations were prepared by **DURATINET** partners for presentation in national or international conferences organized by other institutions, for dissemination of Project activities:

- Sousa, S., Santos Silva, A., Velosa, A., Gameiro, A., Rocha, F., Use of tungsten mine sludge waste in the mitigation of internal expansive reaction, In XII DBMC – 12 th International Conference on Durability of Building Materials and Components, 12-15 April 2011, U. Porto, Vasco Peixoto Freitas, Helena Corvacho, Michael Lacasse (eds.), ISBN 978-972-752-132-6, vol III, pp.1617-1624
- A. Póvoa, Afonso ; Overview of DURATINET , poster presented to “ SILE 2011– International Seminar on Structural Connections, Retrifiting and Rehabilitation of Structures”, UNova, Lisboa, June 2011
- Santos Silva, A., Soares, D., Matos, L., Fernandes, I., Salta, M., Alkali-Aggregate Reactions in concrete: Methodologies applied in the evaluation of Alkali Reactivity of Aggregates for concrete, In VI International Materials Symposium MATERIAIS 2011, 18-20 Abril de 2011, U. Minho, Guimarães, 6p.
- Sousa, S., Santos Silva, A., Velosa, A., Gameiro, A., Rocha, F., Mitigation of internal expansive reaction: The role of tungsten mine sludge, In VI International Materials Symposium MATERIAIS 2011, 18-20 Abril de 2011, U. Minho, Guimarães, 6p.
- Salta, M.; DURATINET: Rede Transnacional para promover a durabilidade das infra-estruturas de transportes no Espaço Atlântico, Sessão Especial DURATINET, ASCP11, Coimbra, 2011
- Pereira, E, Santos Silva, A., Novoa, R.; “Cluster “Green and Smart Structures” Sessão Especial DURATINET, ASCP11, Coimbra, 2011
- Patrício, H., Correia, M.J., Perneta, H.; “Estruturas metálicas. Guia técnico de recomendações”, Sessão Especial DURATINET, ASCP11, Coimbra, 2011
- Póvoa, A., Santos Silva, A., Tomás, Q.; “Estruturas betão armado. Guia técnico de recomendações”, Sessão Especial DURATINET, ASCP11, Coimbra, 2011
- Moura, R.; Requisitos de durabilidade - Controlo de qualidade em obra”, Sessão Especial DURATINET, ASCP11, Coimbra, 2011

## Next Project Meetings

### 7<sup>th</sup> Trans-national Workshop & 7<sup>th</sup> Partners Meeting

Nov 2011

LNEC, Lisbon, Portugal

### DURATINET International Conference & MEDACHS 12

May 2012

Portugal

## Next issue:

### NEWSLETTER Nr 07

November 2011

More information on DURATINET can be obtained from the website

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